

ABSTRACT

The development of solar electricity based on the photovoltaic effect of solar cell devices as an alternative power source is one of the right choices right now, where many renewable energy companies try to make develop photovoltaic. However, on the application, the ability of solar panels to produce electricity is not optimal yet. Because of the arrangement of the angle of reception of light on solar panels that are still not effective. So we need a motion controller from the cross section where the solar panel is located, so that a slope angle can be obtained that corresponds to the direction of the sun's light, so that the ability of the solar panel to produce electrical energy can be optimized.

The solar panel will work well, if it has a position that is perpendicular to the direction the sun is coming from. Therefore, the system that will be designed aims to position the solar panel, remaining perpendicular to the direction of sunlight. In this system, Real-Time Clock module is used to send time data to NodeMCU as a microcontroller to be processed into angular data with azimuth calculation's method. After obtaining the angle of position of the sun, the microcontroller will move the servo motor in the cross section where the solar panel is located so that the position of the solar panel is perpendicular to the position of the sun.

Keywords: *solar panel, optimal, Real-Time Clock, azimuth, drive motor, perpendicular.*